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FOX ROTHSCHILD LLP 997 Lenox Drive, Bldg. #3 Lawrenceville, NJ 08648			CUTLIFF, YATE KAI RENE	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

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Office Action Summary	Application No. 10/599,682	Applicant(s) ISSBERNER ET AL.	
	Examiner YATE' K. CUTLIFF	Art Unit 1621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 May 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 3 - 5 & 11 - 24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 3 - 5 & 11 - 24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Status of Claims

1. Claims 3 – 5 and 11 - 24 are pending.
Claims 1, 2 and 6 - 10 have been canceled
Claims 3 – 5 and 11 - 24 are rejected.

Response to Amendment

2. The amendment to claims 3 - 5, 11, 15 and 21, submitted May 3, 2010 is acknowledged and entered.

Response to Arguments

3. Applicant's arguments, see page 7, filed May 3, 2010, with respect to 35 USC 112 first paragraph rejections of claims 3 – 5 and 11 - 24 have been fully considered and are persuasive in view of the Applicant's arguments and the amendment to the claim 21. The 35 USC 112 first paragraph rejections of claims 3 – 5 and 11 – 24 have been withdrawn.
4. Applicant's arguments with respect to the 35 USC 103(a) rejections of claims 3 – 5 and 11 - 24 have been considered but are moot in view of the new ground(s) of rejection as set out below.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Linder (US 4,332,702) in view of Sakurai et al. (US 4,113,635), in view of Memita et al. (US 6,939,980) and further in view of Andrulis Jr. et al. (US 5,654,312).

9. The rejected claim covers a fatty acid ester mixture of pentaerythritol, wherein the fatty acid component is a mixture containing from about 40% to about 50% by weight of a C16 fatty acid and from about 45% to about 55% by weight of a C18 fatty acid, and wherein said ester contains less than 0.3% by weight of ester containing C17 fatty acid acyl groups, and has a melting point of at least 30°C, wherein said fatty acid

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ester mixture of pentaerythritol is useful as a wax component in cosmetic and/or pharmaceutical compositions.

10. Applicant is reminded that during patent examination, the pending claims must be "given their broadest reasonable interpretation consistent with the specification." In *re Hyatt*, 211 F.3d 1367, 1372, 54 USPQ2d 1664, 1667 (Fed. Cir. 2000). Claim terms are presumed to have the ordinary and customary meanings attributed to them by those of ordinary skill in the art. *Sunrace Roots Enter. Co. v. SRAM Corp.*, 336 F.3d 1298, 1302, 67 USPQ2d 1438, 1441 (Fed. Cir. 2003); *Brookhill-Wilk 1, LLC v. Intuitive Surgical, Inc.*, 334 F.3d 1294, 1298 67 USPQ2d 1132, 1136 (Fed. Cir. 2003). The phrase "contains less than" as applied to C17 fatty acid acyl groups has been interpreted to denote "0 up to 0.3%" C17 fatty acid acyl group. As such, since the claimed fatty acid ester of pentaerythritol can be free of C17 fatty acid acyl groups the claim is anticipated by the Lindner reference. Further, the phrase "has a melting point of at least 30°C" as applied to the fatty acid ester mixture, has been interpreted to denote that this is the start temperature at which the fatty acid ester mixture may begin melting. (see *National Research Development Corporation v. Great Lakes Carbon Corporation, et al.*, 188 USPQ 327 (D. Del. 1975), 410 F. Supp 1108; "At least" one thousand degrees in claim means minimum temperature of one thousand degrees"). Thus, fatty acid ester mixture with a melting temperature above 30°C would fall within the scope of the claim.

11. Lindner discloses a partial ester of pentaerythritol, in column 2, lines 13-20 wherein the fatty acid components overlap with Applicant's claimed fatty acid range.

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Further, Lindner states that these esters are known to be useful as lubricants. (see col. 2, lines 8-9).

12. The difference between Lindner and Applicant's claimed ester is: the fatty acid ester mixture having a melting point of at least 30°C; and the fatty acid ester mixture of pentaerythritol is useful as a wax component in cosmetic and/or pharmaceutical compositions.

13. However, with regards to the fatty acid ester mixture having a melting point of at least 30°C; the Examiner turns to Example 1 of Lindner. In Example 1 the partial ester is shown to have a melting point of 50 to 55 degrees C. (see col. 5, line 51). As such based on the fact that Applicant's claimed ester mixture has a melting point of "at least 30°C", and based on the holding in *National Research Development Corporation v. Great Lakes Carbon Corporation, et al.* (188 USPQ 327 (D. Del. 1975), 410 F. Supp 1108); the melting point of Applicant's ester mixture falls within the melting point range of scope of the claim. Also, the melting points of the partial esters of Lindner are within the stated melting point ranges for partial esters of pentaerythritol with fatty acids as disclosed in Sakurai et al. The references of Sakurai et al. discloses lubricant compositions of a solid film type, with partial esters of pentaerythritol with fatty acids as the chief constituents, rust-preventative, lubrication-improving agents, surface active agents, etc., having melting points of 30 to 60°C. (see col. 1, lines 11-23). Also, it is stated that most of the partial esters of pentaerythritol of a fatty acid have melting points of less than 60°C. (see col. 3, lines 26-27).

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As stated in paragraph 10, the temperature of “at least 30°C” has been interpreted to mean the minimum melting temperature, which means that the mixture could melt at a temperature above 30°C. The Lindner and Sakurai et al. references teach that it was known in the art at the time of Applicant’s claimed invention that partial esters of pentaerythritol of fatty acids have melting points starting at 30°C and less than 60°C. As such, based on the claim as interpreted above, Lindner’s and Sakurai’s melt temperatures overlaps with any of Applicant’s claimed ester mixtures having melting points above 30°C. Thus, based on Lindner and Sakurai et al. Applicant’s claimed temperature range is a known property of partial esters of pentaerythritol with fatty acid acyl groups within Applicant’s claimed carbon atom number. Since Applicant is claiming compounds that overlap with the suggested esters of Lindner and Sakurai et al., one having ordinary skill in the art would expect that the melting point of Applicant’s claimed esters would be within the same ranges as set out in Lindner. In the case where the claimed ranges “overlap or lie inside ranges disclosed by the prior art” a prima facie case of obviousness exists. (In re Wertheim, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); In re Woodruff, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990).

14. With regard to the fatty acid ester mixture of pentaerythritol being useful as a wax component in cosmetic and/or pharmaceutical compositions the Examiner turns to the teaching of Memita et al. The Memita reference teaches a method for producing ester of pentaerythritol with carboxylic acids having 5 to 30 carbon atoms. (see col. 2, lines 47 - 53 & col. 3, line 22 & 32). Also, it is stated in Memita that esters are used in a wide range of fields such as cosmetics, pharmaceutical preparations, foods, electronic

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equipment, printing and lubricants. Additionally, Andrulis teaches that a partial fatty acid ester of pentaerythritol monostearate can be used to prepare dermally applicable formulations. (see col. 11, lines 16 & 32—34). As such, based on the teachings of Memita and Andrulis it was known in the art at the time of Applicant's claimed invention that fatty acid esters of pentaerythritol whether fully esterified or partially esterified were useful in cosmetic and/or pharmaceutical compositions in addition to the lubricant compositions taught by Lindner and Sakurai et al.

15. Applicant's claimed fatty acid ester mixture of pentaerythritol is disclosed by Lindner with the melting ranges being taught by Lindner and Sakurai et al. Further, Applicant claims an intended use for the fatty acid ester mixture of pentaerythritol as a wax component in cosmetic and/or pharmaceutical composition. However, based on the teachings of Memita and Andrulis, it was known in the art at the time of Applicants claimed invention that fatty acid esters of pentaerythritol were useful in cosmetic and/or pharmaceutical compositions. For this reason one having ordinary skill in the art at the time of Applicant's claimed invention would have a reasonable expectation that the ester mixture of Lindner, which has a similar chemical composition as Applicant's claimed ester mixture, has as an inherent feature use as a component of cosmetic and/or pharmaceutical compositions. Further, there is no proof that Applicant's claimed composition possesses unobvious or unexpected properties differing from the properties of the ester mixture taught by Lindner. Where the claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a prima facie case of either

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anticipation or obviousness has been established. (In re Best, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977)). Furthermore, "products of identical chemical composition can not have mutually exclusive properties." A chemical composition and its properties are inseparable. Therefore, if the prior art teaches the identical chemical structure, the properties applicant discloses and/or claims are necessarily present. (In re Spada, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990)). For this reason, Applicant's claimed invention are obvious in view of the teachings of Linder, Sakurai et al., Memita et al. and Andrulis Jr. et al., because use of fatty acid ester mixture of Lindner as a wax component in cosmetic and/or pharmaceutical compositions would flow naturally from the ester mixture of Linder, because Memita teaches that this is a known use for this type of esters.

16. Claims 4 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Linder (US 4,332,702), in view of Sakurai et al. (US 4,113,635), in view of Memita et al. (US 6,939,980) and further in view of Andrulis Jr. et al. (US 5,654,312).

17. The rejected claim covers a fatty acid ester mixture of pentaerythritol, wherein the fatty acid component has 6 to 22 carbon atoms, and wherein said ester mixture contains less than 0.3% by weight of ester containing C17 fatty acid acyl groups, and has a melting point of at least 30°C with a percentage content of (a) from about 10% to about 25% by weight monoesters, (b) from about 25% to about 40% by weight diesters, and (c) from about 30% to about 45% by weight triesters, wherein said fatty acid ester

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mixture of pentaerythritol is useful as a wax component in cosmetic and/or pharmaceutical compositions.

18. Dependent claim 22 further limits the fatty acid mixture.

19. Applicant is reminded that during patent examination, the pending claims must be "given their broadest reasonable interpretation consistent with the specification." In *re Hyatt*, 211 F.3d 1367, 1372, 54 USPQ2d 1664, 1667 (Fed. Cir. 2000). Claim terms are presumed to have the ordinary and customary meanings attributed to them by those of ordinary skill in the art. *Sunrace Roots Enter. Co. v. SRAM Corp.*, 336 F.3d 1298, 1302, 67 USPQ2d 1438, 1441 (Fed. Cir. 2003); *Brookhill-Wilk 1, LLC v. Intuitive Surgical, Inc.*, 334 F.3d 1294, 1298 67 USPQ2d 1132, 1136 (Fed. Cir. 2003). The phrase "contains less than" as applied to C17 fatty acid acyl groups has been interpreted to denote "0 up to 0.3%" C17 fatty acid acyl groups. As such, since the claimed fatty acid ester of pentaerythritol can be free of C17 fatty acid acyl groups the claim is anticipated by the reference. Further, the phrase "has a melting point of at least 30°C" as applied to the fatty acid ester mixture, has been interpreted to denote that this is the start temperature at which the fatty acid ester mixture may begin melting. (see *National Research Development Corporation v. Great Lakes Carbon Corporation, et al.*, 188 USPQ 327 (D. Del. 1975), 410 F. Supp 1108; "At least" one thousand degrees in claim means minimum temperature of one thousand degrees"). Thus, fatty acid ester mixture with a melting temperature above 30°C would fall within the scope of the claim.

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20. Lindner discloses an ester of pentaerythritol, in column 2, lines 21-25 wherein the mixture has a percentage content of monoester, diester and triester overlap with Applicant's claimed ester content.

21. The difference between Lindner and Applicant's claimed ester is: the fatty acid ester mixture having a melting point of at least 30°C; the fatty acid of the fatty acid esters having carbon atoms of C6 to C12; and the fatty acid ester mixture of pentaerythritol is useful as a wax component in cosmetic and/or pharmaceutical compositions.

22. However, with regards to the fatty acid ester mixture having a melting point of at least 30°C; the Examiner turns to Example 1 of Lindner. In Example 1 the partial ester is shown to have a melting point of 50 to 55 degrees C. (see col. 5, line 51). As such based on the fact that Applicant's claimed ester mixture has a melting point of "at least 30°C", and based on the holding in *National Research Development Corporation v. Great Lakes Carbon Corporation, et al.* (188 USPQ 327 (D. Del. 1975), 410 F. Supp 1108); the melting point of Applicant's ester mixture falls within the melting point range of scope of the claim. Also, the melting points of the partial esters of Lindner are within the stated melting point ranges for partial esters of pentaerythritol with fatty acids as disclosed in Sakurai et al. The references of Sakurai et al. discloses lubricant compositions of a solid film type, with partial esters of pentaerythritol with fatty acids as the chief constituents, rust-preventative, lubrication-improving agents, surface active agents, etc., having melting points of 30 to 60°C. (see col. 1, lines 11-23). Also, it is

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stated that most of the partial esters of pentaerythritol of a fatty acid have melting points of less than 60°C. (see col. 3, lines 26-27).

As stated in paragraph 19, the temperature of “at least 30°C” has been interpreted to mean the minimum melting temperature, which means that the mixture could melt at a temperature above 30°C. The Lindner and Sakurai et al. references teach that it was known in the art at the time of Applicant’s claimed invention that partial esters of pentaerythritol of fatty acids have melting points starting at 30°C and less than 60°C. As such, based on the claim as interpreted above, Lindner’s and Sakurai’s melt temperatures overlaps with any of Applicant’s claimed ester mixtures having melting points above 30°C. Thus, based on Lindner and Sakurai et al. Applicant’s claimed temperature range is a known property of partial esters of pentaerythritol with fatty acid acyl groups within Applicant’s claimed carbon atom number. Since Applicant is claiming compounds that overlap with the suggested esters of Lindner and Sakurai et al., one having ordinary skill in the art would expect that the melting point of Applicant’s claimed esters would be within the same ranges as set out in Lindner. In the case where the claimed ranges “overlap or lie inside ranges disclosed by the prior art” a prima facie case of obviousness exists. (In re Wertheim, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); In re Woodruff, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990).

23. With regards to the fatty acids of the fatty acid esters having carbon atoms of C6 to C12 the Examiner turns to the teaching of Sakurai et al. The Sakurai et al. references discloses lubricant compositions of a solid film type, with partial esters of pentaerythritol with fatty acids as the chief constituents, rust-preventative, lubrication-

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improving agents, surface active agents, etc., having melting points of 30 to 60°C. (see col. 1, lines 11-23). Also, it is stated that most of the partial esters of pentaerythritol of a fatty acid have melting points of less than 60°C. (see col. 3, lines 26-27). Further, the fatty acid component in the esters of Sakurai et al. have carbon atoms in the fatty acid acyl group ranging from C10 to C20, which overlaps with the number of carbon atoms in fatty acid acyl groups of Applicant's claimed esters. As such, esters of pentaerythritol having fatty acid groups formed from medium chain fatty acids were known in the art at the time of Applicant's claimed invention. These limitations are deemed to be obvious absent a showing of unexpected results.

A reference is good not only for what it teaches by direct anticipation but also for what one of ordinary skill in the art might reasonably infer from the teachings. (*In re Opprecht* 12 USPQ 2d 1235, 1236 (Fed Cir. 1989); *In re Bode* 193 USPQ 12 (CCPA) 1976). In light of the forgoing discussion, the Examiner concludes that the subject matter defined by the instant claims would have been obvious within the meaning of 35USC 103(a).

24. With regard to the fatty acid ester mixture of pentaerythritol being useful as a wax component in cosmetic and/or pharmaceutical compositions the Examiner turns to the teaching of Memita et al. The Memita reference teaches a method for producing ester of pentaerythritol with carboxylic acids having 5 to 30 carbon atoms. (see col. 2, lines 47 - 53 & col. 3, line 22 & 32). Also, it is stated in Memita that esters are used in a wide range of fields such as cosmetics, pharmaceutical preparations, foods, electronic equipment, printing and lubricants. Additionally, Andrulis teaches that a partial fatty acid

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ester of pentaerythritol monostearate can be used to prepare dermally applicable formulations. (see col. 11, lines 16 & 32—34). As such, based on the teachings of Memita and Andrulis it was known in the art at the time of Applicant's claimed invention that fatty acid esters of pentaerythritol whether fully esterified or partially esterified were useful in cosmetic and/or pharmaceutical compositions in addition to the lubricant compositions taught by Lindner and Sakurai et al.

25. Applicant's claimed fatty acid ester mixture of pentaerythritol is disclosed by Lindner with the melting ranges being taught by Lindner and Sakurai et al. Further, Applicant claims an intended use for the fatty acid ester mixture of pentaerythritol as a wax component in cosmetic and/or pharmaceutical composition. However, based on the teachings of Memita and Andrulis, it was known in the art at the time of Applicants claimed invention that fatty acid esters of pentaerythritol were useful in cosmetic and/or pharmaceutical compositions. For this reason one having ordinary skill in the art at the time of Applicant's claimed invention would have a reasonable expectation that the ester mixture of Lindner, which has a similar chemical composition as Applicant's claimed ester mixture, has as an inherent feature use as a component of cosmetic and/or pharmaceutical compositions. Further, there is no proof that Applicant's claimed composition possesses unobvious or unexpected properties differing from the properties of the ester mixture taught by Lindner. Where the claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a prima facie case of either anticipation or obviousness has been established. (In re Best, 562 F.2d 1252, 1255, 195

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USPQ 430, 433 (CCPA 1977)). Furthermore, "products of identical chemical composition can not have mutually exclusive properties." A chemical composition and its properties are inseparable. Therefore, if the prior art teaches the identical chemical structure, the properties applicant discloses and/or claims are necessarily present. (In re Spada, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990)). For this reason, Applicant's claimed invention are obvious in view of the teachings of Linder, Sakurai et al., Memita et al. and Andrulis Jr. et al., because use of fatty acid ester mixture of Lindner as a wax component in cosmetic and/or pharmaceutical compositions would flow naturally from the ester mixture of Linder, because Memita teaches that this is a known use for this type of esters.

26. Claims 5 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sakurai et al. (US 4,113,635), in view of Memita et al. (US 6,939,980), in view of Andrulis Jr. et al. (US 5,654,312) and further in view of Knothe et al. (American chemical society, 1997).

27. The rejected claim covers a fatty acid ester mixture of pentaerythritol, wherein the fatty acid component has 6 to 22 carbon atoms, and wherein said ester mixture contains less than 0.3% by weight of esters containing C17 fatty acid acyl groups, and has a melting point of at least 30°C with a percentage content of (a) from about 12% to about 19% by weight monoesters, (b) from about 25% to about 35% by weight diesters, (c) from about 30% to about 40% by weight triesters, and (d) from about 6 to about 11% by weight tetraesters, wherein said fatty acid ester mixture of pentaerythritol is useful as

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a wax component in cosmetic and/or pharmaceutical compositions. Dependent claim 23 further limits the fatty acid ester mixture.

Applicant is reminded that during patent examination, the pending claims must be "given their broadest reasonable interpretation consistent with the specification." In *re Hyatt*, 211 F.3d 1367, 1372, 54 USPQ2d 1664, 1667 (Fed. Cir. 2000). Claim terms are presumed to have the ordinary and customary meanings attributed to them by those of ordinary skill in the art. *Sunrace Roots Enter. Co. v. SRAM Corp.*, 336 F.3d 1298, 1302, 67 USPQ2d 1438, 1441 (Fed. Cir. 2003); *Brookhill-Wilk 1, LLC v. Intuitive Surgical, Inc.*, 334 F.3d 1294, 1298 67 USPQ2d 1132, 1136 (Fed. Cir. 2003). The phrase "contains less than" as applied to C17 fatty acid acyl groups has been interpreted to denote "0 up to 0.3%" C17 fatty acid acyl groups. This means that the ester mixture of claim 5 is free of C17 fatty acid acyl groups. Further, the phrase "has a melting point of at least 30°C" as applied to the fatty acid ester mixture, has been interpreted to denote that this is the start temperature at which the fatty acid ester mixture may begin melting. (see *National Research Development Corporation v. Great Lakes Carbon Corporation, et al.*, 188 USPQ 327 (D. Del. 1975), 410 F. Supp 1108; "At least" one thousand degrees in claim means minimum temperature of one thousand degrees"). Thus, fatty acid ester mixture with a melting temperature above 30°C would fall within the scope of the claim.

28. Sakurai et al. discloses lubricant compositions of a solid film type, with partial esters of pentaerythritol with fatty acids as the chief constituents, rust-preventative, lubrication-improving agents, surface active agents, etc., having melting points of 30 to

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60°C. (see col. 1, lines 11-23). The fatty acids used to produce the corresponding partial esters by the reaction with pentaerythritol are from animal oil, vegetable oils, and straight chain fatty acids i.e. capric (C10), undecanoic (C11), lauric (C12), myristic (C14), palmitic (C16), stearic (C18) and olefinic fatty acids. (see col. 3, lines 40-51). Also, it is stated that most of the partial esters of pentaerythritol of a fatty acid have melting points of less than 60°C. (see col. 3, lines 26-27). Also, it is stated that the partial esters are used in the form of mixtures in industry. (see col. 3, lines 51 - 52). It is stated that the partial ester of pentaerythritol of a fatty acid alone may be used satisfactorily as a lubricant of the solid film for the forming operation. (see col. 3, lines 58 – 60). Example 3 discloses pentaerythritol esters that are 20% monoester, 30% diester, 40% triester and 10% tetraester. According to the results in Table 3 the lubricant of Example 3 exhibited satisfactory results for Sakurai's intended purpose as a lubricant. The ranges in Examples 3 overlap Applicant's claimed ranges for the diester, triester and tetraester, and are close to the monoester range.

In the case where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a prima facie case of obviousness exists. In re Wertheim, 541 F.2d 257, 191 USPQ 90 (CCPA 1976). In this instance the fatty acid component of the prior art encompasses the fatty acid content of Applicant's claimed mixture.

29. The difference between Applicant's claimed invention and Sakurai et al. is the following: the fatty acid ester mixture of pentaerythritol is useful as a wax component in cosmetic and/or pharmaceutical compositions; and it does not disclose that the fatty acid is a mixture of fatty acids.

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30. However, with regard to the fatty acid ester mixture of pentaerythritol is useful as a wax component in cosmetic and/or pharmaceutical compositions; the Examiner turns to the teaching of Memita et al. The Memita reference teaches a method for producing ester of pentaerythritol with carboxylic acids having 5 to 30 carbon atoms. (see col. 2, lines 47 - 53 & col. 3, line 22 & 32). Also, it is stated in Memita that esters are used in a wide range of fields such as cosmetics, pharmaceutical preparations, foods, electronic equipment, printing and lubricants. Additionally, Andrulis teaches that a partial fatty acid ester of pentaerythritol monostearate can be used to prepare dermally applicable formulations. (see col. 11, lines 16 & 32—34). As such, based on the teachings of Memita and Andrulis it was known in the art at the time of Applicant's claimed invention that fatty acid esters of pentaerythritol whether fully esterified or partially esterified were useful in cosmetic and/or pharmaceutical compositions in addition to the lubricant compositions taught by Sakurai et al.

31. Applicant's claimed fatty acid ester mixture of pentaerythritol and melting ranges are taught by Sakurai et al. Further, Applicant claims an intended use for the fatty acid ester mixture of pentaerythritol as a wax component in cosmetic and/or pharmaceutical composition. However, based on the teachings of Memita and Andrulis, it was known in the art at the time of Applicants claimed invention that fatty acid esters of pentaerythritol were useful in cosmetic and/or pharmaceutical compositions. For this reason one having ordinary skill in the art at the time of Applicant's claimed invention would have a reasonable expectation that the ester mixture of Sakurai et al., which has a similar chemical composition as Applicant's claimed ester mixture, has as an inherent feature

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use as a component of cosmetic and/or pharmaceutical compositions. Further, there is no proof that Applicant's claimed composition possesses unobvious or unexpected properties differing from the properties of the ester mixture taught by Sakurai et al. Where the claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a prima facie case of either anticipation or obviousness has been established. (In re Best, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977)). Additionally, "products of identical chemical composition can not have mutually exclusive properties." A chemical composition and its properties are inseparable. Therefore, if the prior art teaches the identical chemical structure, the properties applicant discloses and/or claims are necessarily present. (In re Spada, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990)). For this reason, Applicant's claimed invention are obvious in view of the teachings of Sakurai et al., Memita et al. and Andrulis Jr. et al., because use of fatty acid ester mixture of Sakurai et al. as a wax component in cosmetic and/or pharmaceutical compositions would flow naturally from the ester mixture of Sakurai et al., because Memita teaches that this is a known use for this type of esters.

32. With regards to the esters of Sakurai not disclosing that the fatty acid is a mixture of fatty acids, In Example 3 of Sakurai et al, the partial esters were produced from beef tallow. According to the teachings of Knothe et al., which provides an analysis of a variety of natural oils and their fatty acid composition, discloses in Table II on page 179 that the fatty acid composition of beef tallow as a mixture of fatty acids which is

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generally 3 – 6% C14, 25 to 37% C16 fatty acid and about 14 to 52% C18:0 fatty acid.

Based on this fact one of ordinary skill in the art at the time of Applicant's claimed invention would expect that since the esters of Sakurai et al. are made from beef tallow then they would be expected to have a fatty acid composition similar to the beef tallow disclosed by Knothe et al. As such, because of the known fatty acid mixture known to be present in beef tallow Applicant's claimed limitation is deemed to be obvious absent a showing of unexpected results. A reference is good not only for what it teaches by direct anticipation but also for what one of ordinary skill in the art might reasonably infer from the teachings. (*In re Opprecht* 12 USPQ 2d 1235, 1236 (Fed Cir. 1989); *In re Bode* 193 USPQ 12 (CCPA) 1976).

33. Claims 11 and 14 - 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Barth et al. (US 2,441,555), in view of Memita et al. (US 6,939,980; WO 2002/22548)), in view of Plough, Inc. (EP 0179416), and further in view of Bauer et al. (WO 2003/028690A; 2004/0258721).

34. The rejected claims cover, inter alia, a cosmetic and/or pharmaceutical composition comprising a wax ester mixture formed by esterification of pentaerythritol with one or more fatty acids selected from the group consisting of C6-22 fatty acids and combinations thereof, wherein said wax ester mixture contains less than 0.3% by weight of esters containing C17 fatty acid acyl groups, and has a melting point of at least 30°C.

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35. Dependent claims 14 -19 disclose additional components of the cosmetic or pharmaceutical composition. Dependent claim 20 further limits the cosmetic composition.

36. Applicant is reminded that during patent examination, the pending claims must be "given their broadest reasonable interpretation consistent with the specification." In *re Hyatt*, 211 F.3d 1367, 1372, 54 USPQ2d 1664, 1667 (Fed. Cir. 2000). Claim terms are presumed to have the ordinary and customary meanings attributed to them by those of ordinary skill in the art. *Sunrace Roots Enter. Co. v. SRAM Corp.*, 336 F.3d 1298, 1302, 67 USPQ2d 1438, 1441 (Fed. Cir. 2003); *Brookhill-Wilk 1, LLC v. Intuitive Surgical, Inc.*, 334 F.3d 1294, 1298 67 USPQ2d 1132, 1136 (Fed. Cir. 2003). The phrase "contains less than" as applied to C17 fatty acid acyl groups has been interpreted to denote "0 up to 0.3%" C17 fatty acid acyl groups. This means that the ester mixture of claim 11 can be free of C17 fatty acid acyl groups. Further, the phrase "has a melting point of at least 30°C" as applied to the fatty acid ester mixture, has been interpreted to denote that this is the start temperature at which the fatty acid ester mixture may begin melting. (see *National Research Development Corporation v. Great Lakes Carbon Corporation, et al.*, 188 USPQ 327 (D. Del. 1975), 410 F. Supp 1108; "At least" one thousand degrees in claim means minimum temperature of one thousand degrees"). Thus, fatty acid ester mixture with a melting temperature above 30°C would fall within the scope of the claim. Furthermore, the phrase "at least one C6-22" has been interpreted to denote that the pentaerythritol ester mixture can be a monoester, diester, triester or tetraester or mixtures thereof; and one of the fatty acids esterified to

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produce the mixture is selected from the group of fatty acids with carbon atoms numbering from 6 to 22.

37. Additionally, Applicant is reminded that claim 11 is claimed in a Product-by-Process format. The PTO takes the following position with respect to Product-by-Process claims. Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." In re Thorpe, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985). The structure implied by the process steps should be considered when assessing the patentability of product-by-process claims over the prior art, especially where the product can only be defined by the process steps by which the product is made, or where the manufacturing process steps would be expected to impart distinctive structural characteristics to the final product. See, e.g., In re Garnero, 412 F.2d 276, 279, 162 USPQ 221, 223 (CCPA 1979). "The Patent Office bears a lesser burden of proof in making out a case of *prima facie* obviousness for product-by-process claims because of their peculiar nature" than when a product is claimed in the conventional fashion. (In re Fessmann, 489 F.2d 742, 744, 180 USPQ 324, 326 (CCPA 1974)). Once the examiner provides a rationale tending to show that the claimed product appears to be the same or similar to that of the prior art, although produced by a different process, the burden shifts to applicant to come forward with evidence establishing an unobvious

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difference between the claimed product and the prior art product. In re Marosi, 710 F.2d 798, 802, 218 USPQ 289, 292 (Fed. Cir. 1983).

38. For the reasons set out above claim 11, as interpreted by the Examiner, claims a composition comprising a fatty acid wax ester mixture of pentaerythritol containing less than 0.3% by weight of esters containing C17 fatty acid acyl group, and has a melting point of at least 30°C. Claim 11, as interpreted by the Examiner is not limited to a partial ester.

39. Barth et al. teaches the mixed tetraester pentaerythritol triacetate monostearate with a melting point between 36 and 38°C. (see Table 1 the first compound). Barth does not specifically teach examples of the variety of claimed pentaerythritol ester mixtures, however, it teaches that fatty acids suitable for providing the long-chain fatty acid radicals for their invention are those fatty acids having 10 or more carbons, i.e. palmitic (C16), stearic (C18), behenic (C22), arachidic (C20) etc. (see col. 4, lines 17 – 26). Additionally, the mixed pentaerythritol esters produced by Barth are intended to have lubricating properties. (see col. 3, lines 60 - 63 & 65 - 69). Further, Barth's process first uses esterification to produce partial esters of the pentaerythritol, then takes the partial esters and subject them to an additional esterification step to produce the tetraester. It is noted that Barth's process produces mixed esters of pentaerythritol because of the usefulness of their lubricating ability with plastics. (see col.1, lines 8 – 11).

Also, because of the claim interpretations that were discussed by the Examiner above, Applicant's the claimed temperature for their pentaerythritol esters overlaps with

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that of Barth. Thus, based on the claims as broadly interpreted, in the case where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a prima facie case of obviousness exists. In re Wertheim, 541 F.2d 257, 191 USPQ 90 (CCPA 1976).

40. The difference between Applicant's claimed process and Barth et al. is the following: the esters of Barth are not disclosed as useful in a cosmetic and/or pharmaceutical composition; the composition having a wax component, a non ionic surfactant, and/or an oil component; and the wax component being fatty alcohols and partial glycerides and mixtures thereof.

41. However with regard to the use of the fatty acid ester types taught by Barth in cosmetics or pharmaceutical compositions, based on the discussions in Memita et al., it would have been within the purview of one having ordinary skill in the art at the time of Applicant's claim process to recognize that fatty acid esters of pentaerythritol having lubricity properties in one field may be useful in other fields. Specifically, Memita et al. states that esters are used in a wide variety of fields such as cosmetics, pharmaceutical preparations, foods, electronics equipment, printing and lubricants (col. 1, lines 13 – 16). Memita et al. states that there is no limitation regarding the kind of carboxylic acids that can be used to produce ester, wherein Memita prefers carboxylic acids having 5 to 30 carbon atoms. (see col. 2, lines 47 – 50 & 61 – 64). Also, Memita's discloses a process that prepares partial and tetra esters of pentaerythritol with the carboxylic acids (fatty acids) that have C5 to C30 carbon atoms. (see col. 3, line 32). Examples of the pentaerythritol esters of Memita et al. are set out in Examples 1 and 2.

As such, based on the claim interpretation with regard to the types of fatty acids in the claimed pentaerythritol ester of Applicant's invention; the fatty acid component of the prior art pentaerythritol esters of Barth et al. encompasses the fatty acid content of Applicant's claimed mixture. Also, based on the discussion of Memita et al. the pentaerythritol triacetate monostearate ester of Barth or any of the partial esters or tetra esters suggested by Barth would be useful in cosmetics or pharmaceuticals.

42. Furthermore, with regard to the composition of Barth not having a wax component, a non ionic surfactant, and/or an oil component; and the wax component being fatty alcohols and partial glycerides and mixtures thereof; the Examiner turns to Plough. An example of a cosmetic having a pentaerythritol ester contained within the cosmetic composition and of the types suggested by Barth where the fatty acid acyl group is C20 to C24, and include a wax component, a non ionic surfactant, and an oil component can be found in the cosmetic products of Plough. The Plough reference discloses a long ware cosmetic that uses pentaerythritol tetra (C20-C24) aliphatic hydrocarbon carboxylate. (see page 1, paragraph 3). Also, the composition of Plough includes waxes (page 3, para. 3), cetyl alcohol (page 3, last line), sucroglycerides (see page 4, para. continued from page 3), oils (page 4, para. 1), and nonionic surfactants (page 5, para. 6). Applicant is directed to Examples I—VI.

Also, with regard to regard to the use of pentaerythritol esters of the types suggested by Barth in cosmetic compositions and where the wax component of the composition is a C12-C24 partial glyceride, the Examiner turned to the teaching of Bauer et al. The Bauer et al. reference discloses a cosmetic or dermatological stick that

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includes pentaerythritol tetraisostearate and polyglyceryl-3 diisostearate along with other known additives useful in the cosmetic industry; and use of the other components in weight percentages ranges that overlap with Applicant's claimed ranges. Applicant is directed to the disclosure of Examples 93 and 96 on page 46 of Bauer.

Therefore, based on the teachings of Plough and Bauer et al., it would have been obvious to one having ordinary skill in the art at the time of Applicant's claimed invention to prepare cosmetic and/or pharmaceutical compositions that was comprised of a pentaerythritol fatty acid ester of the type disclosed by the teachings of Barth et al.; prepare cosmetic compositions with those esters and include other components known to be useful in the cosmetic and/or pharmaceutical industry as suggested by Plough and Bauer et al. in the cosmetic composition.

43. Claims 11, 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lindner (US 4,322,702), in view of Sakurai et al. (US 4,113,635), in view of Memita et al. (US 6,939,980; WO 2002/22548) and further in view of Andrulis Jr. et al. (US 5,654,312).

44. Rejected claim 11 is discussed above in paragraphs 37 – 41. Rejected claim 12 covers, inter alia, the composition of claim 11 wherein the ester mixture comprises (a) from about 5 to about 35% by weight monoesters, (b) from about 20 to about 50% by weight diesters, and (c) from about 25 to about 50% by weight triesters. Rejected claim 13 covers, inter alia, the composition of claim 11 wherein said C6-22 fatty acid is

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present as a mixture and comprises from about 40% to about 50% by weight of a C16 fatty acid and from about 45% to about 55% by weight of a C18 fatty acid.

45. As set out by the Examiner in paragraphs 36 - 38 as set out above, the claims during patent examination are given their broadest reasonable interpretation.

46. However, Lindner discloses an ester of pentaerythritol, in column 2, lines 21-25 wherein the mixture has a percentage content of monoester, diester and triester overlap with Applicant's claimed ester content. Also, in the fatty acid mixture of Lindner used to produce the partial ester of Example 1, comprises 42.5% C16 fatty acid and 52% C18 fatty acid. Additionally, in column 2, lines 13 - 20 discloses a partial ester of pentaerythritol where the fatty acid components overlap with Applicant's claimed fatty acid range.

47. The difference between Lindner and Applicant's claimed ester is: the composition containing a wax ester of fatty acid ester mixture pentaerythritol having a melting point of at least 30°C; the composition containing a wax ester of fatty acid ester mixture pentaerythritol where the fatty acids for the fatty acid mixture consist of C6 – C22; and the fatty acid ester mixture of pentaerythritol is in a cosmetic and/or pharmaceutical composition.

48. However, with regards to the composition containing a wax ester of fatty acid ester mixture pentaerythritol having a melting point of at least 30°C; the Examiner turns to Example 1 of Lindner. In Example 1 the partial ester is shown to have a melting point of 50 to 55 degrees C. (see col. 5, line 51). As such based on the fact that Applicant's claimed ester mixture has a melting point of "at least 30°C", and based on the holding in

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National Research Development Corporation v. Great Lakes Carbon Corporation, et al. (188 USPQ 327 (D. Del. 1975), 410 F. Supp 1108), (“At least” one thousand degrees in claim means minimum temperature of one thousand degrees”). This reference provides the basis for interpreting that fatty acid ester mixture with a melting temperature above 30°C would fall within the scope of Applicant’s claim 11. For this reason the one having ordinary skill in the art could reasonably presume that the melting point of the partial esters of Lindner falls within the melting point range of Applicant’s claimed ester. Also, the melting points of the partial esters of Lindner are within the stated melting point ranges for partial esters of pentaerythritol with fatty acids as disclosed in Sakurai et al. The references of Sakurai et al. discloses lubricant compositions of a solid film type, with partial esters of pentaerythritol with fatty acids as the chief constituents, rust-preventative, lubrication-improving agents, surface active agents, etc., having melting points of 30 to 60°C. (see col. 1, lines 11-23). Also, it is stated that most of the partial esters of pentaerythritol of a fatty acid have melting points of less than 60°C. (see col. 3, lines 26-27).

As previously stated, the temperature of “at least 30°C” has been interpreted to mean the minimum melting temperature, which means that the mixture could melt at a temperature above 30°C. The Lindner and Sakurai et al. references teach that it was known in the art at the time of Applicant’s claimed invention that partial esters of pentaerythritol of fatty acids have melting points starting at 30°C and less than 60°C. As such, based on the claim as interpreted above, Lindner’s and Sakurai’s melt temperatures overlaps with any of Applicant’s claimed ester mixtures having melting

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points above 30°C. Thus, based on Lindner and Sakurai et al. Applicant's claimed temperature range is a known property of partial esters of pentaerythritol with fatty acid acyl groups within Applicant's claimed carbon atom number. Since Applicant is claiming compounds that overlap with the suggested esters of Lindner and Sakurai et al., one having ordinary skill in the art would expect that the melting point of Applicant's claimed esters would be within the same ranges as set out in Lindner. In the case where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a prima facie case of obviousness exists. (*In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990).

49. With regards to the composition containing a wax ester of fatty acid ester mixture pentaerythritol where the fatty acids for the fatty acid mixture consist of C6 – C22; the Examiner turns to the teaching of Sakurai et al. The Sakurai et al. references discloses lubricant compositions of a solid film type, with partial esters of pentaerythritol with fatty acids as the chief constituents, rust-preventative, lubrication-improving agents, surface active agents, etc., having melting points of 30 to 60°C. (see col. 1, lines 11-23). Also, it is stated that most of the partial esters of pentaerythritol of a fatty acid have melting points of less than 60°C. (see col. 3, lines 26-27). Further, the fatty acid component in the esters of Sakurai et al. have carbon atoms in the fatty acid acyl group ranging from C10 to C20, which overlaps with the number of carbon atoms in fatty acid acyl groups of Applicant's claimed esters. As such, esters of pentaerythritol having fatty acid groups formed from medium chain fatty acids were known in the art at the time of Applicant's

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claimed invention. These limitations are deemed to be obvious absent a showing of unexpected results.

A reference is good not only for what it teaches by direct anticipation but also for what one of ordinary skill in the art might reasonably infer from the teachings. (*In re Opprecht* 12 USPQ 2d 1235, 1236 (Fed Cir. 1989); *In re Bode* 193 USPQ 12 (CCPA) 1976). In light of the forgoing discussion, the Examiner concludes that the subject matter defined by the instant claims would have been obvious within the meaning of 35USC 103(a).

50. With regard to the fatty acid ester mixture of pentaerythritol being in a cosmetic and/or pharmaceutical composition; the Examiner turns to the teaching of Memita et al. The Memita reference teaches a method for producing ester of pentaerythritol with carboxylic acids having 5 to 30 carbon atoms. (see col. 2, lines 47 - 53 & col. 3, line 22 & 32). Also, it is stated in Memita that esters are used in a wide range of fields such as cosmetics, pharmaceutical preparations, foods, electronic equipment, printing and lubricants. Additionally, Andrulis teaches that a partial fatty acid ester of pentaerythritol monostearate can be used to prepare dermally applicable formulations. (see col. 11, lines 16 & 32—34). As such, based on the teachings of Memita and Andrulis it was known in the art at the time of Applicant's claimed invention that fatty acid esters of pentaerythritol whether fully esterified or partially esterified were useful in cosmetic and/or pharmaceutical compositions in addition to the lubricant compositions taught by Lindner and Sakurai et al.

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51. Applicant claimed cosmetic and/or pharmaceutical composition containing a wax ester mixture that is pentaerythritol esters of fatty acids, contains a known partial ester of pentaerythritol as taught by Lindner and Sakurai. Further, based on the teachings of Memita and Andrulis, it was known in the art at the time of Applicants claimed invention that fatty acid esters of pentaerythritol, of the type taught by Lindner and Sakurai, were useful in cosmetic and/or pharmaceutical compositions. For this reason one having ordinary skill in the art at the time of Applicant's claimed invention would have a reasonable expectation that the ester mixture of Lindner, which has a similar chemical composition as Applicant's claimed ester mixture, has as an inherent feature use as a component of cosmetic and/or pharmaceutical compositions. Further, there is no proof that Applicant's claimed composition possesses unobvious or unexpected properties differing from the properties of the ester mixture taught by Lindner. Where the claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a prima facie case of either anticipation or obviousness has been established. (In re Best, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977)). Furthermore, "products of identical chemical composition can not have mutually exclusive properties." A chemical composition and its properties are inseparable. Therefore, if the prior art teaches the identical chemical structure, the properties applicant discloses and/or claims are necessarily present. (In re Spada, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990)). For this reason, Applicant's claimed invention are obvious in view of the teachings of Linder, Sakurai et al., and further in view of the teachings Memita et al. and Andrulis Jr. et al., because

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use of fatty acid ester mixture of Lindner as a wax component in cosmetic and/or pharmaceutical compositions would flow naturally from the ester mixture of Linder, because Memita teaches that this is a known use for this type of esters.

52. Claims 21 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sakurai et al. (US 4,113,635) in view of Kirk-Othmer (Wiley-Interscience, 1993, vol. 10, 4th ed. page 267), in view of Memita et al. (US 6,939,980) and further in view of Andrulis Jr. et al. (US 5,654,312).

53. The rejected claim covers a fatty acid ester mixture of pentaerythritol, wherein the fatty acid contains 6 to 22 carbon atoms and comprises unbranched fatty acids, and wherein said ester mixture contains less than 0.3% by weight of C17 fatty acid acyl groups, and has a melting point of at least 30°C, wherein said fatty acid ester mixture of pentaerythritol is useful as a wax component in cosmetic and/or pharmaceutical compositions. Dependent claim 24 further limits the fatty acids.

54. Applicant is reminded that during patent examination, the pending claims must be "given their broadest reasonable interpretation consistent with the specification." In re Hyatt, 211 F.3d 1367, 1372, 54 USPQ2d 1664, 1667 (Fed. Cir. 2000). Claim terms are presumed to have the ordinary and customary meanings attributed to them by those of ordinary skill in the art. Sunrace Roots Enter. Co. v. SRAM Corp., 336 F.3d 1298, 1302, 67 USPQ2d 1438, 1441 (Fed. Cir. 2003); Brookhill-Wilk 1, LLC v. Intuitive Surgical, Inc., 334 F.3d 1294, 1298 67 USPQ2d 1132, 1136 (Fed. Cir. 2003). The phrase "contains less than" as applied to C17 fatty acid acyl groups has been

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interpreted to denote "0 up to 0.3%" C17 fatty acid acyl groups. As such, since the claimed fatty acid ester of pentaerythritol can be free of C17 fatty acid-containing component the claim is anticipated by the reference. Further, the phrase "has a melting point of at least 30°C" as applied to the fatty acid ester mixture, has been interpreted to denote that this is the start temperature at which the fatty acid ester mixture may begin melting. (see *National Research Development Corporation v. Great Lakes Carbon Corporation, et al.*, 188 USPQ 327 (D. Del. 1975), 410 F.Supp 1108; "At least" one thousand degrees in claim means minimum temperature of one thousand degrees"). Thus, fatty acid ester mixture with a melting temperature above 30°C would fall within the scope of the claim.

55. Sakurai et al. discloses lubricant compositions of a solid film type, with partial esters of pentaerythritol with fatty acids as the chief constituents, rust-preventative, lubrication-improving agents, surface active agents, etc., having melting points of 30 to 60°C. (see col. 1, lines 11-23). The fatty acids used to produce the corresponding partial esters by the reaction with pentaerythritol are from animal oil, vegetable oils, and straight chain fatty acids (unbranched) i.e. capric (C10), undecanoic (C11), lauric (C12), myristic (C14), palmitic (C16), stearic (C18) and olefinic fatty acids. (see col. 3, lines 40-51). Also, it is stated that most of the partial esters of pentaerythritol of a fatty acid have melting points of less than 60°C. (see col. 3, lines 26-27). Additionally, it is stated that the mono, di- and tri-substituted esters are more preferably than the esters produced by esterifying all of the four hydroxyl groups; and the partial esters are used in the form of mixtures in industry. (see col. 3, lines 48 - 52). According to Table 1 the ester lubricant

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compositions of Sakurai et al., specifically mono, di and triester types are produced from stearic acid (C18), coconut oil and beef tallow.

56. The difference between Sakurai et al. and Applicant claimed invention is as follows: requirement that the ester comprises unbranched fatty acids; the ester being a mixture of C6 - C22 fatty acids; and fatty acid ester mixture of pentaerythritol is useful as a wax component in cosmetic and/or pharmaceutical compositions.

57. However, with regard to the esters of Sakurai et al. comprising unbranched fatty acids, the Examiner notes that according to Table 1 of Sakurai et al. one of the esters produced is from coconut oil. According to the disclosure of Kirk-Othmer coconut oil is comprised of unbranched fatty acids of C6 - C18. As such, even though it is not specifically stated that the fatty acids of Sakurai et al. are unbranched, Sakurai et al. produces a mixed ester of pentaerythritol from coconut oil and beef tallow. According to the Kirk-Othmer the fatty acid components of these fats and oils are unbranched. As such, the esters produced from these oils would contain unbranched fatty acid that overlap with Applicant's claimed fatty acid structure.

58. Also, with regard to the fatty acid ester mixture being a mixture of C6 to C22 fatty acids, based on the composition of the coconut oil, as set out in Kirk-Othmer, and used by Sakurai et al. the fatty acid ester mixture of the coconut oil in Table 1 would be a mixture of fatty acids, contain a fatty acid ester mixture of pentaerythritol with overlapping carbon atom amounts. A chemical composition and its properties are inseparable. Therefore, if the prior art teaches the identical chemical structure, the

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properties applicant discloses and/or claims are necessarily present. (In re Spada, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990)).

For the reasons above, one having ordinary skill in the art at the time Applicant's invention was made when viewing the fatty acid ester of pentaerythritol of Sakurai et al., and based on the fact that Sakurai et al. teaches that partial esters of pentaerythritol with fatty acids from coconut oil, and partial esters have melting points of 30°C, would have a reasonable expectation that the Sakurai et al. partial esters would have the same characteristics as Applicant's claimed esters.

59. With regards to the fatty acid ester mixture of pentaerythritol is useful as a wax component in cosmetic and/or pharmaceutical compositions; the Examiner turns to the teaching of Memita et al. The Memita reference teaches a method for producing ester of pentaerythritol with carboxylic acids having 5 to 30 carbon atoms. (see col. 2, lines 47 - 53 & col. 3, line 22 & 32). Also, it is stated in Memita that esters are used in a wide range of fields such as cosmetics, pharmaceutical preparations, foods, electronic equipment, printing and lubricants. Additionally, Andrulis teaches that a partial fatty acid ester of pentaerythritol monostearate can be used to prepare dermally applicable formulations. (see col. 11, lines 16 & 32—34). As such, based on the teachings of Memita and Andrulis it was known in the art at the time of Applicant's claimed invention that fatty acid esters of pentaerythritol whether fully esterified or partially esterified were useful in cosmetic and/or pharmaceutical compositions in addition to the lubricant compositions taught by Sakurai et al.

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60. Applicant's claimed fatty acid ester mixture of pentaerythritol is taught by Sakurai et al. in view of Kirk-Othmer. Also, Applicant's claimed melting range is taught by Sakurai et al. Further, Applicant claims an intended use for the fatty acid ester mixture of pentaerythritol as a wax component in cosmetic and/or pharmaceutical composition. However, based on the teachings of Memita and Andrulis, it was known in the art at the time of Applicants claimed invention that fatty acid esters of pentaerythritol were useful in cosmetic and/or pharmaceutical compositions. For this reason one having ordinary skill in the art at the time of Applicant's claimed invention would have a reasonable expectation that the ester mixture of Sakurai et al., which has a similar chemical composition as Applicant's claimed ester mixture, has as an inherent feature use as a component of cosmetic and/or pharmaceutical compositions. Further, there is no proof that Applicant's claimed composition possesses unobvious or unexpected properties differing from the properties of the ester mixture taught by Sakurai et al. Where the claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a prima facie case of either anticipation or obviousness has been established. (In re Best, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977)). Additionally, "products of identical chemical composition can not have mutually exclusive properties." A chemical composition and its properties are inseparable. Therefore, if the prior art teaches the identical chemical structure, the properties applicant discloses and/or claims are necessarily present. (In re Spada, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990)). For this reason, Applicant's claimed invention are obvious in view of the

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teachings of Sakurai et al. and Kirk-Othmer, in view of Memita et al. and Andrulis Jr. et al., because use of fatty acid ester mixture of Sakurai et al. as a wax component in cosmetic and/or pharmaceutical compositions would flow naturally from the ester mixture of Sakurai et al., because Memita teaches that this is a known use for this type of esters.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to YATE' K. CUTLIFF whose telephone number is (571)272-9067. The examiner can normally be reached on M-TH 8:30 a.m. - 5:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Daniel M. Sullivan can be reached on (571) 272 - 0779. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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